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AUTHOR Elmore, Richard F.
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ABSTRACT

This paper discusses the importance of teacher professional development to student achievement. Section 1, "The Imperative: Investment in Human Skill and Knowledge," explains that despite contradictory evidence, prevailing assumptions asserts that teachers learn most of what they need during preservice education. Section 2, "The Knowledge Gap in Professional Development: The Ideal and the Real," examines the consensus on effective professional development. Section 3, "The Practice of Professional Development: The Real," discusses the knowledge gap and the costs of failure. Section 4, "The Practice of Improvement: Getting from Here to There," explains that professional development is a collective good, and its value is judged by what it contributes to the individual's capacity to improve the quality of education overall. Section 5, "How Professional Development Can Work to Improve Schools," discusses knowledge and skills (e.g., expertise in teaching exists, and context matters) and incentives (e.g., internal accountability precedes external accountability, and the most direct incentives are embedded within work itself). Section 6, "Effective Use of Professional Development Requires High Organizational Capacity," explains that to use professional development as an instrument of instructional improvement, schools and school systems must reorganize themselves to make substantial changes in the conditions of work for teachers and students. Section 7 offers "Conclusion: Developing the Practice of Improvement." Appended are brief summaries of standards for staff development, principles for transforming professional development, and research-based principles for improving professional development. (Contains 67 references.) (SM)

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Bridging the Gap Between Standards and Achievement

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The Imperative for Professional Development in Education

By Richard F. Elmore

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Bridging the Gap Between Standards and Achievement

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By Richard F. Elmore*

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* Richard Elmore is Gregory Anrig Professor of Educational Leadership at the Graduate School of Education, Harvard University, and senior research fellow at the Consortium for Policy Research in Education.

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The Imperative: Investment in Human Skill and Knowledge

The work of schools is becoming more complex and demanding while the organization of schools remains, for the most part, static and rigid. If you push hard enough on a rigid structure, eventually it will break and hurt the people in it. This is the perilous state of American public education.

The immediate cause of this situation is a simple, powerful idea dominating policy discourse about schools: That students should be held to high, common standards for academic performance and that schools and the people who work in them should be held accountable for ensuring that students—all students—are able to meet these standards. Accountability schemes come in many forms, including high-stakes student testing, district-led closure or restructuring of low-performing schools, and state takeovers of low-performing schools and districts.

The term "accountability" also can refer to many things, including rules and procedures, or to the delivery of certain types of academic content. But in this paper, I use the term only to refer to systems that hold students, schools or districts responsible for academic performance, since this is the dominant form of accountability in education today. Unfortunately, schools and school systems were not designed to respond to the pressure for performance that standards and accountability bring, and their failure to translate this pressure into useful and fulfilling work for students and adults is dangerous to the future of public education.

The standards and accountability movement is broad-based politically and persistent over time. It involves state legislators, governors, advocacy groups and professional organizations. It stems from the basic belief that schools, like other public and private organizations in society, should be able to demonstrate what they contribute to the learning of students and that they should engage in steady improvement of practice and performance over time. The accountability movement expresses society's expectation that schools will face and solve the persistent problems of teaching and learning that lead to the academic failure of large numbers of students and the mediocre performance of many more. Over time, if schools improve, increased accountability will result in increased legitimacy for public education. Failure will lead to erosion of public support and a loss of legitimacy.

With increased accountability, American schools and the people who work in them are being asked to do something new—to engage in systematic, continuous improvement in the quality of the educational experience of students and to subject themselves to the discipline of measuring their success by the metric of students' academic performance. Most people who currently work in public schools weren't hired to do this work, nor have they been adequately prepared to do it either by their professional education or by their prior experience in schools.

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Schools, as organizations, aren't designed as places where people are expected to engage in sustained improvement of their practice, where they are supported in this improvement, or where they are expected to subject their practice to the scrutiny of peers or the discipline of evaluations based on student achievement. Educators in schools with the most severe performance problems face truly challenging conditions, for which their prior training and experience have not prepared them—extreme poverty, unprecedented cultural and language diversity and unstable family and community patterns. To work effectively under these conditions requires a level of knowledge and skill not required of teachers and administrators who work in less demanding situations, yet accountability systems expect the same level of performance of all students, regardless of social background. Hence, given the conditions of their work, some school-people regard demands for performance-based accountability as unreasonable. Throughout much of society and the economy, however, there has been a discernible shift toward performance and value-added measures of success triggered by the economic crisis of the late 1970s and early 1980s. In other high-skill, knowledge-based occupations—research and development, engineering, health care, even social services—some system of evaluation and accountability has been an important part of professional life for at least two decades. So when educators claim that they are being unfairly treated by a hostile accountability system, it's not surprising that people who work in other knowledge-intensive sectors are not particularly sympathetic.

The organization and culture of American schools is, in most important respects, the same as it was in the late nineteenth and early twentieth centuries. Teachers are still, for the most part, treated as solo practitioners operating in isolation from one another under conditions of work that severely limit their exposure to other adults doing the same work. The work day of teachers is still designed around the expectation that teachers' work is composed exclusively of delivering content to students, not, among other things, to cultivating knowledge and skill about how to improve their work.

The prevailing assumption is that teachers learn most of what they need to know about how to teach before they enter the classroom—despite massive evidence to the contrary—and that most of what they learn after they begin teaching falls into the amorphous category of "experience," which usually means lowering their expectations for what they can accomplish with students and learning to adjust to an organization that is either hostile to or unsupportive of their work. This limited view of what teachers need to know and do demands little educational leadership from administrators. And, since administrative work currently has little to do with the content of teaching, much less its improvement, it may actually act to protect teachers from various external intrusions on their isolated work.

The learning that is expected of teachers and administrators as a condition of their work also tends to be predicated on the model of solo practice. In order to advance in rank and salary, individual teachers and administrators are expected to accumulate academic credit for the university courses they take, any or all of which may be totally unconnected to their daily work. Most workplace learning also mirrors the norms of the organization—it takes the form of information about policies and practices delivered in settings disconnected from where the work of the organization is actually done.

It would be difficult to invent a more dysfunctional organization for a performance-based accountability system. In fact, the existing structure and culture of schools seems better designed to resist learning and improvement than to enable it. As expectations for increased student performance mount and the measurement and publication of evidence about perform-

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ance becomes part of the public discourse about schools, there are few portals through which new knowledge about teaching and learning can enter schools; few structures or processes in which teachers and administrators can assimilate, adapt and polish new ideas and practices; and few sources of assistance for those who are struggling to understand the connection between the academic performance of their students and the practices in which they engage.

So the brutal irony of our present circumstance is that schools are hostile and inhospitable places for learning. They are hostile to the learning of adults and, because of this, they are necessarily hostile to the learning of students. They have been this way for some time. What's new about the current situation is that the advent of performance-based accountability has made the irony more visible—and may ultimately undermine the legitimacy of public education if something isn't done to change the way schools work.

Accountability must be a reciprocal process. For every increment of performance I demand from you, I have an equal responsibility to provide you with the capacity to meet that expectation. Likewise, for every investment you make in my skill and knowledge, I have a reciprocal responsibility to demonstrate some new increment in performance. This is the principle of "reciprocity of accountability for capacity." It is the glue that, in the final analysis, will hold accountability systems together (Elmore 2000). At the moment, schools and school systems are not designed to provide support or capacity in response to demands for accountability.

The imperative here is for professionals, policymakers and the public at large to recognize that performance-based accountability, if it is to do what it was intended to do—improve the quality of the educational experience for all students and increase the performance of schools—requires a strategy for investing in the knowledge and skill of educators. In order for people in schools to respond to external pressure for accountability, they have to learn to do their work differently and to rebuild the organization of schooling around a different way of doing the work. If the public and policymakers want increased attention to academic quality and performance, the *quid pro quo* is investing in the knowledge and skill necessary to produce it. If educators want legitimacy, purpose and credibility for their work, the *quid pro quo* is learning to do their work differently and accepting a new model of accountability.

Despite massive evidence to the contrary, the prevailing assumption is that teachers learn most of what they need to know about how to teach before they enter the classroom.

The Knowledge Gap in Professional Development: The Ideal and the Real

Professional development is the label we attach to activities that are designed in some way to increase the skill and knowledge of educators (Fenstermacher and Berliner 1985). In professional discourse, "professional development" is distinguished from "pre-service" education by the fact that it occurs after teachers and administrators are on the job, during the routine course of their work. However, as we shall see later, this distinction is problematical in designing comprehensive approaches to the development of skill and knowledge. In practice, professional development covers a vast array of specific activities, everything from highly targeted work with teachers around specific curricula and teaching practices through short, "hit-and-run" workshops designed to familiarize teachers and administrators with new ideas or new rules and requirements, to off-site courses and workshops designed to provide content and academic credit for teachers and administrators.

So, to say that we should invest more money in "professional development" in the present context is not to say anything very meaningful. The connection between professional development, as presently practiced, and the knowledge and skill of educators is tenuous at best; its relationship to the imperative of improving instruction and student performance is, practically speaking, nonexistent (Feiman-Nemser 1983, 163). Spending more money on existing professional development activities, as most are presently designed, is unlikely to have any significant effect on either the knowledge and skill of educators or on the performance of students.

Yet, much of the literature written by researchers and practitioners about professional development seems quite sensible and useful in thinking about how to design and operate professional development activities that have some likelihood of improving teaching and learning. The research is rarely grounded in hard empirical evidence about its effects on practice or on student learning, but it certainly provides an ample basis for designing activities that could be subjected to empirical testing.

CONSENSUS ON EFFECTIVE PROFESSIONAL DEVELOPMENT

Educators' professional literature and academic research reflect a broad consensus on the main features of effective professional development. Exhibit 1 presents one summary of this consensus. This account of the consensus view draws heavily on the original standards for professional development adopted by the National Staff Development Council in 1995 (Sparks and Hirsch 1997, Sparks 1995).[1] In this view, effective professional development is focused on the

EXHIBIT 1

Professional Development: The Consensus View

- Focuses on a well-articulated mission or purpose anchored in student learning of core disciplines and skills
- Derives from analysis of student learning of specific content in a specific setting
- Focuses on specific issues of curriculum and pedagogy
  - Derived from research and exemplary practice
  - Connected with specific issues of instruction and student learning of academic disciplines and skills in the context of actual classrooms
- Embodies a clearly articulated theory or model of adult learning
- Develops, reinforces, and sustains group work
  - Collaborative practice within schools
  - Networks across schools
- Involves active participation of school leaders and staff
- Sustains focus over time—continuous improvement
- Models of effective practice
  - Delivered in schools and classrooms
  - Practice is consistent with message
- Uses assessment and evaluation
  - Active monitoring of student learning
  - Feedback on teacher learning and practice

improvement of student learning through the improvement of the skill and knowledge of educators. In a given school or school system, specific professional development activities would follow from a well articulated mission or purpose for the organization and that purpose would be anchored on some statement about student learning. So, for example, a school or system might say that its objective over a period of time would be to improve students' demonstrated knowledge and skill in reading, writing and mathematics as measured by portfolios of student work, curriculum-based assessments and state- or district-administered examinations. From this broad statement of purpose, the school or district might derive expectations focused more specifically on certain settings—e.g., basic reading and writing skills among students with learning problems in the primary grades, inferential and problem-solving skills in algebra in the middle grades, interpretation and analysis of expository and technical writing in the upper grades.

The point here is that professional development, if it is to be focused on student learning, at some point must be tailored to address the difficulties encountered by real students in real classrooms as well as broader systemic objectives. Similarly, effective professional development is connected to questions of content and pedagogy that educators are asking—or should be asking—about the consequences of their instructional practices on real students as well as in general questions about effective teaching practice.

Professional development brings the general and the externally validated in contact with the specific and the contextual. So, for example, an elementary school with persistently low reading scores and many students who have basic decoding and comprehension difficulties might focus its professional development activities on instructional strategies to improve stu-

[1] See Appendix A, page 38, to view the NSDC's revised standards.

dents' skills in those domains—especially those that work well in concert with the schools' specific reading program. Or, a secondary school struggling with the introduction of a new requirement that all students demonstrate a knowledge of basic algebra might focus its professional development efforts on strategies to engage students who previously would not have been expected to master this level of mathematics.

According to the consensus view, the practice of professional development, however focused and wherever enacted, should embody a clear model of adult learning that is explained to those who participate. Those who engage in professional development should be willing to say explicitly what new knowledge and skill educators will learn as a consequence of their participation, how this new knowledge and skill will be manifested in their professional practice, and what specific activities will lead to this learning.

Professional development, in the consensus view, should be designed to develop the capacity of teachers to work collectively on problems of practice, within their own schools and with practitioners in other settings, as much as to support the knowledge and skill development of individual educators. This view derives from the assumption that learning is essentially a collaborative, rather than an individual, activity—that educators learn more powerfully in concert with others who are struggling with the same problems—and that the essential purpose of professional development should be the improvement of schools and school systems, not just the improvement of the individuals who work in them. The improvement of schools and school systems, likewise, has to engage the active support and collaboration of leaders, not just their tacit or implicit support, and this support should be manifested in decisions about the use of time and money.

Professional development in the service of improvement requires commitment to consistency and focus over the long term. The broad mission and goals that shape professional development should reflect a path of continuous improvement in specific domains of student learning. The activities should be continuous from one year to the next. As schools reach one set of objectives, they should move on to more ambitious ones and educators should demonstrate continuity and consistency in the improvement of their practice in specific domains from one year to the next. So, for example, a school district might frame broad goals for the improvement of student learning in basic academic content areas. It would then work out with each school a more specific plan of action based on the profile of that school's student population and patterns of student performance—adjusting performance expectations upward each year as the school advances.

The focus of professional development on enacted practice—the combination of academic content and pedagogy into classroom delivery that is responsive to issues of student learning in specific settings—requires that the physical location of the learning be as close as possible to where the teaching itself occurs. Hence, successful professional development is likely to occur in schools and classroom settings, rather than off-site, and it is likely to involve work with individual teachers or small groups around the observation of actual teaching. Proximity to practice also requires that the pedagogy of professional developers be as consistent as possible with the pedagogy that they expect from educators. It has to involve professional developers who, through expert practice, can model what they expect of the people with whom they are working.

Finally, successful professional development—because it is specifically designed to improve student learning—should be evaluated continuously and primarily on the basis of the effect it has on student achievement.

POTENTIAL AREAS OF CONFLICT AND DISAGREEMENT

Within this broad consensus on the essentials of effective professional development there is plenty of disagreement. Associations that represent coalitions of practitioners—such as the National Staff Development Council (NSDC)—tend to present their recommendations as voluntary and consensual. They view a school system's process of creating a professional development strategy as consensus building—between the system and its community and among teachers and administrators within schools. In their words, "Everyone works together to identify strategies and develop action plans consistent with the district's overall mission" (Sparks 1995). In reality, deciding on who sets the purpose and focus of professional development is often conflict-ridden, especially in systems with high proportions of low-performing students. Student learning is a function, in part, of adult expectations; when educators work in schools where expectations for student achievement are chronically low or where expectations are highly differentiated, a consensus professional development plan may only institutionalize mediocrity and low performance. Hence, connecting professional development to the overall improvement of student achievement is likely to raise key issues about teaching and learning that may never arise through a process of simple consensus building.

Similarly, the idea of voluntarism raises the question of whether teachers should be able to choose to participate in professional development activities in their schools, whether schools should be required to participate in an overall process for determining which professional development activities should be present in their schools, and whether there should be a systemwide instructional improvement process that limits and focuses professional development activity within schools. There are two fundamental principles in tension here: the first suggests that professional development should be focused on systemwide improvement, which leads to limiting individual and school discretion; the other suggests that educators should play a major role in determining the focus of professional development, both for themselves and for their schools. These principles can be difficult to reconcile, especially in the context of an accountability system that emphasizes measurable student performance.

Another difficult issue arises out of the relationship between professional development and personnel evaluations. If professional development occurs in close proximity to practice, then professional developers are likely to know a great deal about the strengths and weaknesses of the teachers with whom they work. Also, if principals are closely involved with the planning and implementation of the school's professional development activities, they will tend to treat the knowledge they gain from observing teacher practices as useful in their responsibility for evaluating those teachers. One possibility is that the learning objectives of professional development are corrupted by the possibility that they will be used for evaluation. Another possibility is that, in a well-functioning school, professional development is part of a seamless process of instruction and improvement for adults and children, and that it is almost impossible to pull the two apart. Whichever view you take, active pursuit of professional development is likely to create conflict around its relationship to teacher evaluation.

Finally, guidance about successful professional development fails to resolve an important issue of content versus process. In general, advocates of thoughtful, systematic approaches to school improvement (see Fullan 1991) stress that to change their schools educators need to develop skill and knowledge about the fundamentals of group problem-solving and interpersonal skills. At the same time, professional development that improves student learning must involve hard, detailed work on the fundamentals of content and pedagogy. In principle, there

Successful professional development—because it is specifically designed to improve student learning—should be evaluated continuously and primarily on the basis of the effect it has on student achievement.

is no conflict between these purposes. In practice, they are likely to be in constant tension. In some senses, it is easier for educators to focus on issues of process—at the expense of issues of content and pedagogy (see below and Little 1990)—because process can be framed so as to avoid difficult questions of teacher autonomy and control. For example, we can agree, as a matter of process, to treat all issues of pedagogy as matters of personal taste. But doing so would mean that decisions about professional development would be largely personal also, disconnected from collective knowledge about best practice in the improvement of student learning. Thus, the prospects for large-scale improvement would remain dim.

The Practice of Professional Development: The Real

While there is evidence that the consensus about effective professional development has influenced the way professional associations and researchers portray the field, there is little evidence that this consensus has had a large-scale effect on the practices of schools and school systems. School systems use a more or less standard model for handling issues of professional development, and this model is largely, if not entirely, at odds with the consensus about effective practice. Few school districts treat professional development as a part of an overall strategy for school improvement. In fact, many districts do not even have an overall strategy for school improvement. Instead, districts tend to see staff development as a specialized activity within a bureaucratic structure. In some instances, there are particular people with assigned roles who work with teachers and principals around content. In other instances, professional development is a function of certain categorical programs designed to serve special student populations, such as English language learners, poor students, students with disabilities, or the gifted and talented. In many cases, individual teachers—and sometimes whole schools—are required to have a coordinated professional development plan. Yet these plans are often nothing more than a collection of teachers' individual activities over the course of a year, without a general design or specific focus that relates particular activities to an overall strategy or goal (Little 1993).

Most school systems organize formal professional development around specified days. Teachers are relieved from their regular duties to participate in activities that are usually unrelated to instructional practice, except in the broadest sense of that term. Designed to serve the widest possible audience, systemwide professional development is usually focused on specific and disconnected topics—student discipline, test preparation, district and state policy

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changes—and typically occurs in large-group settings away from classrooms and schools. Often these days are specified contractually through local collective bargaining agreements, so that professional development becomes associated with a specific number of discrete days disconnected from any focused strategy to equip teachers with the knowledge and skill they need to improve student learning in specific domains. More importantly, the incentive structures under which most teachers work reward them with salary increases for the courses they take on their own time and largely outside of the schools and systems in which they work, either through private vendors or colleges of education. There is usually no incentive and little guidance for aligning these courses with school and district priorities. Thus, most courses are determined by individual teacher preference.

THE GAP

Whatever else one might say about the consensus view of effective professional development, it is, at the very least, a reasonable working theory for the design of large-scale professional development activities. In response to demands for accountability, it rightly aims to improve teaching practice and student learning. The main elements of the consensus view—a strong focus on systemwide and schoolwide performance goals, heavy emphasis on teachers' content knowledge and the pedagogical skills that go with effective instruction, explicit theories of adult learning, use of group settings, moving learning close to the point of practice, etc.—are all things that could be operationalized, evaluated and studied for their effectiveness in improving practice. The terms of the consensus view are sufficiently clear to be broadly communicated. The guidance of the consensus view is sufficiently broad to be applicable in a variety of settings and adaptable to a variety of contexts. And finally, the potential conflicts that arise out of the consensus view are problems that can be understood and anticipated.

The knowledge gap, then, is not so much about knowing what good professional development looks like; it's about knowing how to get it rooted in the institutional structure of schools. The problem is connecting the ideal prescriptions of the consensus model with the real problems of large-scale improvement and accountability.

Exhorting schools and school systems to engage in more enlightened professional development practices, even under the pressure of performance-based accountability, is unlikely to have much effect without more explicit guidance about how to bring these more enlightened practices into the mainstream of school life. This knowledge gap requires more explicit attention to the practice of improvement.

THE VARIETIES AND COSTS OF FAILURE

As noted above, the relationship between professional development and accountability is essentially reciprocal. It is an investment in knowledge and skill in order to achieve an end. Those who are being "developed" must consent to learning what they are being asked to do and how to do it; those who are demanding results must understand that school personnel are being asked to implement practices they currently do not know how to do. Both parties should understand that most learning occurs through experimentation and error, not through a straight linear process. It is in this domain of reciprocity that failures are most likely to occur.

Judith Warren Little suggests that the traditional "training model" of professional devel-

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opment—which assumes that a clearly-defined body of skills can be transferred from trainers to teachers through a well-specified process—is largely inappropriate, given the complexity of the tasks that are required for all schools to help students meet high academic standards. She recommends a variety of approaches that take explicit account of the difficult work required of teachers to meet new expectations, the level of commitment and energy they will need to learn and develop effective new practices, and the uncertainty about whether externally developed solutions will work in their specific classroom contexts (Little 1993).

More direct linkages between professional development and accountability will fail—or at the very least will be relatively ineffective—to the extent that they turn professional development into a tool for control. They will succeed to the degree that they engage teachers and administrators in acquiring knowledge and skills they need to solve problems and meet expectations for high performance. To the degree that people are being asked to do things they don't know how to do and, at the same time, are not being asked to engage their own ideas, values and energies in the learning process, professional development shifts from building capacity to demanding compliance.

The avenues for failure are many: Administrators can construct professional development as training in discrete skills that teachers feel have limited or no applicability to their real work. The level of support for teachers and administrators in learning new practices can be too weak relative to the demands that learning and implementing the new practices will make on them. Problems in connecting new practices to the specific demands that teachers face can be ignored or pushed aside by administrators or professional developers. Or, the new practices themselves may simply not work as intended.

The costs of these failures may be high: the loss of credibility for professional development as an essential activity in the organization; the loss of commitment to building the knowledge and skill that teachers and administrators need to be effective; and, an undermining of the premise of improvement—that is, the premise that investment in educators' skills and knowledge can be connected to improvement in student achievement. Later, I will speak to these issues under the heading of capacity building. For now, it is important to reinforce the idea that professional development and accountability are reciprocal processes demanding high engagement in both policy and practice, and that the long-term objective of investing in educators' skills and knowledge is to increase the capacity of schools to solve pressing problems through the application of best practice, not just to implement someone else's solutions.

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The Practice of Improvement: Getting from Here to There

In its simplest form, the practice of large-scale improvement is the mobilization of knowledge, skill, incentives, resources and capacities within schools and school systems to increase student learning. Strictly speaking, the practice of improvement is the sharing of a set of proven practices and their collective deployment for a common end. It is not the property of any one individual or any incumbent in any specific job. It is not the property of teachers or administrators or professional developers. It is a common set of practices shared across the profession, irrespective of roles.

Large-scale improvement intends to reach *all* students in *all* classrooms and all schools through the daily work of teachers and administrators. The idea of *improvement* means measurable increases in the quality of instructional practice and student performance over time. Quality and performance are on the vertical axis; time is on the horizontal axis; and improvement is movement in a consistently northeasterly direction.

Improvement, as we will use the term here, means engagement in learning new practices that work, based on external evidence and benchmarks of success, across multiple schools and classrooms, in a specific area of academic content and pedagogy, resulting in continuous improvement of students' academic performance over time. Improvement is not random innovation in a few classrooms or schools. It does *not* focus on changing processes or structures, disconnected from content and pedagogy. And it is *not* a single-shot episode. Improvement is a discipline, a practice that requires focus, knowledge, persistence and consistency over time.

Notice that the term "change" does not occur in any of these definitions. Change in the discourse of education is overused and under-defined. Change is generally regarded as positive, even when it achieves no discernible results. Schools are accustomed to changing—promiscuously and routinely—without producing any improvement. When I use the term change (which is rarely), I use it only to refer to specific alterations of existing structures, processes, or practices that are intended to result in improvement. In other words, change, in my vocabulary, is motivated and judged by the standard of student learning.

The practice of large-scale improvement is the process by which external demands for accountability are translated into concrete structures, processes, norms and instructional practices in schools and school systems. Professional development is the set of knowledge- and skill-building activities that raise the capacity of teachers and administrators to respond to external demands and to engage in the improvement of practice and performance.

In this context, professional development is effective only to the degree that it engages teachers and administrators in large-scale improvement. This is an intentionally narrow and instrumental view.[2] Professional development, as it is typically practiced, confuses the individual's personal growth and learning with the growth and learning of the individual that contributes to organizational performance. When teachers present individual professional development plans, for example, it is often unclear which activities are designed to enhance their individual growth and which are designed to improve their practice as teachers in a particular organization with clear goals. Likewise, courses and workshops that are offered for academic credit are often focused on the individual interests of teachers and administrators more than on the development of a shared body of skills and knowledge, necessary for schools and districts to implement a common set of successful practices.

Professional development, as I will use the term in the context of large-scale improvement, is a *collective good* rather than a private or individual good. Its value is judged by what it contributes to the individual's capacity to improve the quality of instruction in the school and school system.

How Professional Development Can Work To Improve Schools

Whether professional development improves instructional quality and academic performance depends as much on the characteristics of the organization it serves as on the characteristics of the professional development activity itself. The features of effective professional development, as described in Exhibit 1, embody some very heroic assumptions about the organizational context in which the activity occurs. For example, focusing professional development on a well-articulated mission or purpose anchored in student learning assumes that leaders know what purposes the system is pursuing and can articulate them specifically enough to identify the particular professional development activities that are needed to support them. Deriving professional development from an analysis of what is needed to improve student learning assumes that the system has the capacity to capture useful, accurate informa-

[2] But not so very different from mainstream definitions in the literature on professional development. For example, "Staff development is defined as the provision of activities designed to advance the knowledge, skills, and understanding of teachers in ways that lead to changes in their thinking and classroom behavior. This definition limits the range of staff development to those specific activities that enhance knowledge, skills, and understanding in ways that lead to changes in thought and action." (Fenstermacher and Berliner 1985, 283). All that's missing here is the explicit connection to student learning.

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tion about student learning and that the people in the system have the capacity to apply that information to decisions about instructional content and professional development. Developing and sustaining group work assumes that there is time in the instructional day and that teachers and administrators have the norms and skills that are required for productive group work. And so forth down the list. At this point, one is reminded of the saying, "If we had some ham, we could have some ham and eggs—if we had some eggs." It does little good to know what quality professional development might look like if schools and school systems are incapable of supporting it.

In summary, the practice of improvement is largely about moving whole organizations—teachers, administrators and schools—toward the culture, structure, norms and processes that support quality professional development in the service of student learning. In addition, the practice of improvement at the individual and organizational levels involves mastery in several domains (see Exhibit 2): knowledge and skill; incentives; and resources and capacity. The knowledge and skill domain asks what people need to know in order to improve the quality and effectiveness of their practice, and under what conditions they are most likely to learn it. The incentives domain asks what kinds of encouragements and rewards people should receive for acquiring this knowledge and using it to enhance performance and support improvement. The resources and capacity domain asks what level of material support and what kinds of capacities—organizational and individual—the system needs to ensure that professional development leads to large-scale improvement.

KNOWLEDGE AND SKILL

The practice of improvement involves the acquisition of new knowledge, connecting that knowledge with the skills necessary for effective practice and creating new settings where learning can occur. As an illustration, take what has become a central problem of performance-based accountability in secondary schools—teaching algebra to all secondary school students.

EXHIBIT 2
Domains in the Practice of Large-Scale Improvement

- **Students' Knowledge and Skill**
  What do students need to know and be able to do?
  Under what conditions will they learn it?
- **Educators' Knowledge and Skill**
  What do educators need to know and be able to do to help all students succeed?
  Under what conditions will they learn it?
- **Incentives**
  What rewards and penalties encourage large-scale improvement?
  Who will receive these incentives and who decides, using what criteria?
- **Resources and Capacity**
  What material supports lead large-scale improvement?

This seemingly reasonable goal raises a formidable array of practical problems. By the time students reach the ninth or tenth grade, their range of mathematics performance is usually quite wide. Historically, algebra was taught largely to college-bound students who represent the upper range of performance and, perhaps, have a higher level of motivation to master the new subject-matter. The new focus on increasing the number of students taking algebra means more algebra classes, which means more algebra teachers—all in a market where mathematics teachers are in short supply.

Most secondary schools solve this problem by drafting teachers with inadequate math skills into teaching the additional classes, typically assigning them to the classes with the lowest-achieving students. In addition, most secondary schools will continue to teach every algebra class with the methods that have always been used to teach well-prepared college-bound students, just adding sections. Using teachers whose main expertise may not be in mathematics instruction, they also layer on remedial classes—conducted after-school, by extending class periods during the regular day, or during summer sessions—to accommodate the students who fail to master the content, either because they have difficulty with math or because their algebra classes were badly-taught the first time around.

In other words, the school's response to the requirement that all students learn algebra is to make marginal adjustments in organizational structure (remedial classes, more sections), while leaving teachers' knowledge and skill essentially untouched. What this approach ignores, of course, is that the algebra requirement presents an instructional problem that few schools have faced before—how to deal with a broad range of mathematical skill and knowledge among students and teachers. Addressing this instructional problem will require that everyone involved in teaching algebra learn something new about both the content and the pedagogy required to reach students with a wide range of skill and preparation levels.

There are many other, similar examples: students in the early grades being expected to demonstrate mastery of written text in a language they don't yet comprehend; students arriving in the eighth or tenth grade who are expected to provide written interpretations of text that they don't have the literacy skills to understand; students in secondary school who perform well on tasks that involve factual recall, but who have not been taught to answer questions that require interpretation and analysis. These problems all have a common structure. In fact, at some level, they are the same problem: They all involve a fundamental issue of practice that challenges the existing structure of schools, and they all require more knowledge and skill of the people who work there. They all require people in the organization, not just to do their work differently, but to think differently about the nature and purpose of their work. And, they all require a high degree of cooperation among people with diverse roles in deploying the skills and knowledge that are necessary to help students with very different levels of interest prepare to meet common, high expectations for learning. These problems also expose the weakest aspects of schools and school systems as organizations. Their solution requires traditionally isolated teachers to act in concert with each other around common issues of content and practice and they require administrators to play a much more active role in the provision and improvement of instruction.

Interestingly, though, these problems lie in a domain about which we know a considerable amount. Here, in summary, is what the research says about the issues of knowledge and skill in the improvement of practice:

Expertise in teaching exists. It can be identified and it can be enhanced through professional development, but it doesn't necessarily support improvement in student achievement.

The knowledge necessary for successful teaching lies in three domains: (1) deep knowledge of the subject-matter (i.e., history and mathematics) and skills (i.e., reading and writing) that are to be taught; (2) expertise in instructional practices that cut across specific subject areas, or "general pedagogical knowledge"; and (3) expertise in instructional practices that address the problems of teaching and learning associated with specific subjects and bodies of knowledge, referred to as "pedagogical content knowledge."

Novice teachers differ markedly from expert teachers in their command of these domains and their ability to use them. For example, they differ in the array of examples and strategies they can use to explain difficult concepts to students, in the range of strategies they can employ for engaging students who are at different performance levels, and in the degree of fluency and automaticity with which they employ the strategies they know. Professional development that results in significant changes in practice will focus explicitly on these domains of knowledge, engage teachers in analysis of their own practice, and provide opportunities for teachers to observe experts and to be observed by and to receive feedback from experts. One aspect of expertise, however, sometimes works against improvement. When the deeply embedded practices of experienced teachers run against new models of practice, when teachers are asked to challenge what they think about the range of student knowledge and skill they can accommodate in a given classroom, entrenched beliefs can work against the acquisition of new knowledge. Thus, one aspect in improving the quality of teaching is often *un*learning deeply seated beliefs and implicit practices that work against the development of new, more effective practices (Borko and Putnam 1995; Feiman-Nemser 1983; Clark and Peterson 1986).

So while expertise exists, matters and can be improved, it is not true that experience equals expertise. That is, deep knowledge in the domains necessary to become a powerful and fluent practitioner does not automatically, or even reliably, come as a result of continuous practice. In fact, the evidence is substantial that the early socialization of teachers, coupled with the isolation of teaching, rather quickly socializes novices into what Feiman-Nemser calls a "utilitarian" view of teaching, characterized by narrow focus and routinization rather than active learning and the deepening of knowledge (Feiman-Nemser 1983, 156). The disjunction between experience and expertise is an issue to which we will return, but it is important to acknowledge that, in a system that values expertise and its dissemination, it may be necessary to make judgments about who has it that are at odds with the conventional view that experience inevitably leads to expertise.

These problems all require people in the organization, not just to do their work differently, but to think differently about the nature and purpose of their work.

Learning is both an individual and a social process. Capturing individual learning for the benefit of the group enterprise depends on structures that support interdependence in serious, substantive ways.

It is now commonplace to argue, as does the consensus view of professional development, that teachers learn through social interaction around problems of practice and that the enhancement of teacher learning requires support for collegial interaction where teachers can work on new practices.

A substantial part of the research in this domain takes its conceptual guidance from the idea of "communities of practice"; that is, informal social networks of people who share con-

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crete ideas, values and norms about their work (Lave and Wenger 1991; Wenger 1998). While it is clear that the creation of social networks can have a significant effect on the development of new practices among experienced teachers (e.g., Stein, Smith and Silver 1999), it is also clear that certain forms of collegiality work against improvement. Mandated activities that have little or no purpose or utility, activities that stress the social aspects of collegiality over the use of collegiality to enhance instructional practice, and forms of interaction that aren't grounded in the quest to improve student achievement—all these forms of collegiality are likely to sidetrack cooperative work away from improvement (Bird and Little 1986; McLaughlin and Yee 1988; Brown, Collins and Duguid 1989; Hargreaves 1991; Huberman 1995). In general, the existing school structure, which is organized to reinforce isolated work and problem solving, makes collaboration very expensive. Thus, collaborative professional development activities that are not engaging and demonstrably useful to teachers and administrators can lead quickly to cynical compliance or outright resistance.

Practice and values change in concert. Both are important and both should be the focus of new learning for teachers and administrators.

I began by stating that performance-based accountability systems are asking the people who work in schools to do things they currently don't know how to do. They are also asking many people to do things they don't think are possible and may not even believe are desirable. Experienced teachers often have very strong, fixed ideas about which students can master high academic standards and which can't. They also have very strong ideas about which kinds of practices will work for their students and which won't. These ideas are formed from experience, personal values and knowledge of pedagogy and content. By virtue of their working conditions, most teachers deal with issues of practice in a very particularistic way. Thus, more likely than not, broad guidance about instructional practice or even very specific guidance without a strong connection to the particular circumstance or specific curriculum that must be taught, will have little or no effect on practice.

Improving instructional practice requires a change in beliefs, norms and values about what it is possible to achieve as well as in the actual practices that are designed to bring achievement. In other words, improvement requires a theory of individual learning. This is a domain in which there is not likely to be a high level of disagreement about the right working theory. In the short run, it is probably more important to have an explicit working theory than it is to have any one working theory particular. One example of a well-specified and tested theory of individual learning and improvement is Guskey's (1989) theory of attitude and perceptual change in teachers. He argues that practice changes attitudes rather than vice-versa. Rather than exhorting teachers to believe that students can learn differently, or that different students can learn at higher levels, then showing teachers the practices that go with these beliefs, Guskey argues that teachers must actually try these new practices with the students for whom they believe the practices are problematical. If the new practices succeed with those students, then teachers have the opportunity to reflect on their values and attitudes, and on the changes in them that are required as a result of this experience. Guskey found that teachers who were able to use certain practices successfully "expressed more positive attitudes toward teaching and increased personal responsibility for their students' learning" (Guskey 1989, 444). He concludes that changes in attitudes and beliefs generally follow, rather than precede, changes in behavior.

An important implication of Guskey's theory is that instruction itself is probably the

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most potent form of professional development available to schools. This organizational reality can operate both for and against improvement. Guskey puts it this way: "The instructional practices that most veteran teachers employ are fashioned to a large extent by their experiences in the classroom. Practices that are found to 'work,' that is, those leading to desired learning outcomes, are retained; others are abandoned. Hence, a key determinant of enduring change in instructional practices is demonstrable results in terms of students' performance. Activities that are demonstrably successful tend to be repeated while those that are not successful, or for which there is no tangible evidence of success, are dropped" (Guskey, 445). It follows that, if most of what teachers learn about practice they learn from their own practice, it is imperative to make the conditions and context of that practice supportive of high and cumulative levels of achievement for all students. Which leads to the last principle under knowledge and skill, which is. . .

Few people willfully engage in practices that they know to be ineffective; most educators have good reasons to think that they are doing the best work they can.

Context matters.

Improvement requires a more or less specific understanding or theory about what matters in a given context—a classroom, a school, a school system—in line with the overall purposes and standards by which performance is being judged. Any accountability system, any system of improvement, any professional development strategy must relate the particularities of the student body, the classroom, the school and the system to the overall demands being made on the entire school system.

The level of expertise among teachers is important. It determines the starting point for work on instructional issues and, hence, the professional development capacity of schools and school systems. Teachers' level of experience, knowledge of subject matter and facility with collaborative work form the bedrock for developing group norms and forms of collaboration around specific instructional practices. The students, their prior knowledge and skill, their family and community contexts, and their previous educational experiences influence teachers' attitudes, expectations and practices. The norms, values and expectations that teachers hold about student learning and their own practice guide teachers' focus on new practices that they see as useful to their daily work. While it's possible, indeed necessary, to have broad standards of quality and performance for teaching practice and even specific priorities for which content areas and which grade levels are the priorities for professional development, this broad guidance takes complicated translation for specific schools and teachers to use it to improve the system as a whole.

In general, knowledge and skill are at the core of school improvement. If you don't know what kinds of knowledge and skill are required to improve student learning, if you can't recognize different levels of expertise in that core knowledge, and if you don't have a working theory for how to build greater expertise in teaching practice, then it's unlikely that more resources spent on professional development will make any difference to student learning.

INCENTIVES

Any plan of improvement has to address the motives of individuals and of groups; their willingness to pursue a common purpose through collaborative activity that is likely to entail great effort, uncertainty and alteration in established norms and habits. The question of motive is especially significant for the typical school, where most people experience their work as difficult and complex without the additional burden of collaborative effort. Few people willfully

engage in practices that they know to be ineffective; most educators have good reasons to think that they are doing the best work they can under the circumstances. Asking them to engage in work that is significantly different from what they are already doing requires a strong rationale and incentive. This is probably the aspect of performance-based accountability and improvement that has received the least attention.

In general, the theory of performance-based accountability is that providing communities, parents, teachers and administrators with evidence of student performance, coupled with rewards and sanctions for high and low performance, will stimulate schools and school systems to focus on doing what is necessary to improve student learning. We now know, of course, that there are serious problems with this theory: People in schools often don't know what to do to fix the problems and don't have access to the resources that are necessary to learn. Schools and school systems often do things—teaching test items rather than real content, for example—that manifestly are bad educational practice but that help them raise test scores quickly. And, under the new performance-based system, schools often compete for the students who are most likely to succeed rather than learning how to succeed in educating the students that they have.

Ideas about the use of incentives to accompany performance-based accountability are also underdeveloped. The incentives that are available to policymakers are fairly blunt instruments: publication of test scores; student promotion, retention and graduation; identification and classification of schools by performance levels; cash awards to individuals or schools; and, the takeover or reconstitution of failing schools. The characteristic that all of these incentives share is that they have virtually no relationship to the knowledge and practice of improvement. The data, the penalties, the administrative drama of designating failure or placing blame—none of these tell school people anything about how to advance student and adult learning. In other words, the important question for the design of an effective improvement process is not so much which external incentives are available to press schools for higher levels of performance, but rather what *responses* by schools and school systems are most likely to increase learning and performance.

In fact, while there are many problems with the design and implementation of performance-based accountability systems, the most serious difficulty lies with the inadequacy of the responses that schools and school systems have made to the policies. And it is mostly not their fault. Most schools are unprepared to respond effectively to any performance-based accountability system, whether well designed or poorly designed. Since school preparedness is so central, it makes sense to look at the improvement process at the classroom and school levels, then from the perspective of the broader system. What kinds of incentives are likely to engage teachers and administrators in professional development that improves practice? The research gives us some useful guidance on this question.

Internal accountability precedes external accountability and is a precondition for any process of improvement.

Schools do not "succeed" in responding to external cues or pressures unless they have their own internal system for reaching agreement on good practice and for making that agreement evident in organization and pedagogy. We know this from the many studies of effective schools—that is, the schools that have the most effective professional development programs and the schools that accommodate accountability most successfully. These schools have a clear, strong internal focus on issues of instruction, student learning and expectations for teacher and

student performance. In academia, we call this a strong "internal accountability system." By this we mean that there is a high degree of alignment among individual teachers about what they can do and about their responsibility for the improvement of student learning. Such schools also have shared expectations among teachers, administrators and students about what constitutes good work and a set of processes for observing whether these expectations are being met (Newmann and King, et. al. 2000; Little 1993; Abelmann and Elmore, et. al. 1999).

No externally administered incentive, whether it be reward or sanction, will automatically result in the creation of an effective improvement process inside schools and school systems. Nor will any incentive necessarily have a predictable effect across all schools. The effect of incentives is contingent on the capacity of the individual school or school district to receive the message the incentive carries, to translate it into a concrete and effective course of action, and to execute that action. Incentives have a differential effect, depending on the capacity of the settings in which they work, with the differential effects of accountability systems being relatively predictable. Schools with weak internal accountability systems are likely to respond to external incentives in fragmented, incoherent and ineffective ways. Schools with relatively strong internal accountability systems are likely to respond in more effective and coherent ways.

Under the new performance-based system, schools often compete for the students who are most likely to succeed rather than learning how to succeed in educating the students that they have.

The most direct incentives are those embedded in the work itself; the further away from the work, the less powerful and predictable is an incentive's effect.

School personnel are more likely to work collaboratively to improve performance if the work itself is rewarding and if the external rewards support and reinforce work that is regarded as instrumental to increased quality and performance. Kelley, Odden and their colleagues studied the effects of school-based performance award systems—systems that provide monetary awards to schools for gains in student achievement. They found that the actual monetary reward was often cited by teachers for its importance, but that teachers also valued their own personal satisfaction in seeing improved student achievement, opportunities to work with other teachers on instructional problems, a sense of solidarity in achieving schoolwide goals and public recognition of their success. Teachers also engaged in their own cost/benefit analysis of external performance incentives. They actively calculated the value of the rewards, tangible and intangible, against the increased pressure and stress that came with performance-based accountability, expressing doubt about the likelihood that policymakers would actually meet their commitments if schools demonstrated wide-scale improvement (Kelley and Odden, et al. 2000).

Given the atomized structure of most schools, it seems improbable that external rewards will, in and of themselves, transform these organizations into coherent, supportive environments for student and adult learning. A more likely scenario, in parallel with the Guskey argument, is that teachers and administrators will learn the value of successful collaboration from experience, then make the connection between this work and any external rewards or sanctions. It also seems probable that, within the work, visible evidence of student learning will be the most immediate motivator for continued improvement. Certainly it also makes sense to assume that teachers and school leaders will view stability in the level of resources committed to improvement as a basic condition for the investment of their own increased effort. The work itself, then, is the primary motivator for learning and improvement. If the work is not engaging and if it is not demonstrably beneficial to student learning, then any incentives are likely to produce weak and unreliable effects.

Both individual and collective incentives, skillfully designed, can support professional development and large-scale improvement.

School-based incentives are collective rewards; they accrue to the school as a whole or to the individuals who work in the school on the basis of their collective performance. What about individual rewards—rewards that accrue to particular teachers and particular administrators based on their individual work? There is reason to worry that individual incentives might reinforce the existing atomization of schools. As previously stated, individual teachers accumulate points toward salary and step increases by accumulating academic credits from courses that may have no relationship to their school's performance. Many districts also offer professional development activities on a space-available basis for which teachers sign up as individuals, usually disconnected from any school-improvement plan or schoolwide priority. The large-group workshops and school-level meetings that are typical of professional development days also tend to be only loosely related to actual classroom needs. Thus, the structure of professional development reflects and reinforces the atomized, individual incentive structure of schools and school systems. This, in turn, undermines the possibility of using collective resources—the time of teachers and administrators and the money that is used to purchase outside expertise—to support a coherent and collective improvement of practice. In this instance, individual rewards and incentives work against the objective of overall improvement.

Yet it may be possible to design a system of individual rewards that reinforce large-scale improvement. Not all incentives for large-scale improvement have to be collective, and it's possible for individual incentives to play a powerful role in an overall improvement process. Odden and Kelley, for example, have proposed a knowledge- and skill-based compensation system that ties individual salary increments, step increases and bonuses to professional development activities and demonstrated competencies in domains of practice that are important to school and systemwide improvement (Kelley and Odden 1995). Thus, teachers could be rewarded for gaining and demonstrating knowledge and skill in new instructional strategies for literacy or mathematics that are tied to the school's and/or school system's performance goals. A similar, but broader, incentive would be to give increased compensation and responsibility to teachers who successfully complete the performance-based certification process of the National Board for Professional Teaching Standards (NBPTS), an independent, professional organization that focuses on the certification of teachers for advanced levels of competency. The design of the incentive structure and uses of incentives are probably more important than the types of incentives that are used.

It seems improbable, however, that a large-scale improvement process could work without strong, stable and consistent collective incentives for the improved knowledge and skill of individual educators as well as for the school's development of a more coherent internal accountability system. The addition of an external accountability system could send a strong signal that society expects school personnel to work in concert to improve student achievement. Currently, many schools are not much more than organizational fictions—places where adults interact with students in the classroom, but which have little adult interaction and a weak organizational identity in the lives of the those who work there. Such organizations are not designed to engage in systematic, cumulative, collective learning about how to reach progressively higher levels of quality and performance. Thus, the fundamental problem of incentives is how to engage school personnel in work that is rewarding in some immediate, personal way, but that also encourages collaborative work around the shared purposes of the organization.

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CAPACITY

Accountability systems and incentive structures, no matter how well designed, are only as effective as the capacity of the organization to respond. The purpose of an accountability system is to focus the resources and capacities of an organization toward a particular end. Accountability systems can't mobilize resources that schools don't have. School responses to accountability systems vary, depending on how well they manage themselves around collaborative work on instructional improvement. Accountability systems don't cause schools to improve; they create the conditions in which it is advantageous for schools to work on specific problems, to focus their work in particular ways, and to develop new knowledge and skills in their students and staff. The capacity to improve precedes and shapes schools' responses to the external demands of accountability systems.

Accountability systems don't cause schools to improve; they create the conditions in which it is advantageous for schools to work on specific problems.

Most state accountability structures are either blind or relatively ineffectual in regard to the question of capacity. Some states, notably Kentucky and Texas, provide technical assistance to failing schools, but the statewide scope of the capacity problem far exceeds states' commitment of resources to these efforts. Some states also have created networks to provide technical assistance and professional development to teachers and administrators around curriculum content, standards and performance measurements. However, most states' efforts are uninformed by any particularly powerful models of large-scale improvement. The networks are largely disconnected from the daily, detailed work of schools and so, in some ways may reinforce the isolation that exists within schools. Lack of capacity is the Achilles heel of accountability. Without substantial investment in capacity building, all that performance-based accountability systems will demonstrate is that some schools are better prepared than others to respond to accountability and performance-based incentives, namely the ones that had the highest capacity to begin with. This is not exactly what the advocates of performance-based accountability had in mind (Elmore 2001).

When experts are asked what they would do about the capacity problem in schools and school systems, they invariably recommend more spending on professional development, as if any increase in professional development activity will automatically increase capacity and student performance. The problem with this prescription is that it confuses cause and effect. If schools and school systems understood the importance of professional development to their overall performance, they would, of course, already be spending their own money on it and spending it in a targeted and coherent way. The fact that most school systems do not already have a coherent and powerful professional development system is, itself, evidence that they would not know what to do with increased professional development funding. Investing in more professional development in low-capacity, incoherent systems is simply to put more money into an infrastructure that is not prepared to use it effectively. Thus, the question of capacity precedes and coexists with the question of how much new money should be invested in professional development.

Capacity is defined by the degree of successful interaction of students and teachers around content.

Defining the connection between professional development and capacity requires us to understand what capacity is, how to reach it with professional development, and what resources are available for this. If investments in it are to be directly related to improvement, the definition of capacity has to be rooted in instruction. Cohen, Raudenbush and Ball (2000) define

instructional resources, or capacity, as the knowledge, skill, and material resources that are brought to bear on the interaction among students, teachers and content. They argue that none of these three elements can be treated in isolation from each other. One cannot, for example, enhance teachers' knowledge and skill without also addressing what teachers know about reaching individual students and the actual curriculum that teachers are expected to teach and students are expected to master. Likewise, you can't insist on the mastery of more rigorous content without also asking whether teachers have the requisite knowledge and skill to teach it, and where students are in their own learning relative to where the content is pitched. Nor can you "improve" student achievement without understanding what students bring to the learning, what teachers understand about student learning and in what content domain, using what curricular materials and resources, teachers and students are expected to function.

This simple, powerful model of capacity relates to the conditions under which instruction occurs. The existence of capacity in a school is evident in the interaction among teachers and students around content. Investments in capacity that do not directly affect this interaction are unlikely to improve either the quality of instruction or student learning. It also suggests that there are three entry points, or portals, for the development of capacity: teachers, students, and content. Professional development works as a capacity-building device to the extent that it enters each of these portals and acknowledges the relationship among them. The model also suggests that all schools and school systems have solutions to the problem of instructional capacity embedded in their existing teaching practices and organizational arrangements, and that enhancing capacity consists of unpacking these existing arrangements, diagnosing how they support or undermine what the school system is trying to accomplish, and changing them to be consistent with collective goals for improvement.

Effective Use of Professional Development Requires High Organizational Capacity

Returning to the relationship between professional development and organizational capacity, the Cohen, et al. model explains why investment in professional development by low-capacity schools and school systems often has no effect or a negative effect on morale and performance. Professional development affects teachers, that is, its use assumes that giving teachers new skills and knowledge enhances the capacity of teachers to teach more effectively. But, if it consists only of that, it is likely to have a modest-to-negative effect because the teacher usually returns to a classroom

and a school in which the conditions of instruction and the conditions of work are exactly the same as when the he or she began the professional development. The students are exactly the same. The content is exactly the same, or only slightly altered by the new materials introduced through the professional development. The teacher begins to teach and discovers that the ideas that seemed plausible during training don't seem to work in the school or classroom context. The "real world," in the language of teachers, overwhelms the new idea, no matter how powerful or well demonstrated in theory. If this professional development cycle is run repeatedly, it produces a negative reinforcement pattern. Teachers become cynical about any new idea when no previous new idea has worked. The low capacity in this situation is the inability of the organization to support the teacher in navigating the complex interactions among the new skills and knowledge he/she has acquired, existing patterns of student engagement, and the modifications to curricula and content that may be necessary to execute the new practices in this particular setting with these particular students.

Under these circumstances, it is a gargantuan task for a teacher to actually improve his or her practice: She would have to assimilate the new knowledge and skill at a relatively high level of understanding (how one does that without actually practicing the skill repeatedly is a mystery, like learning to fly an airplane or play tennis by reading a book or watching a video tape). Immediately, she would have to transfer that knowledge into a setting in which student responses are highly unpredictable, and probably predictably disappointing on the first try. And she would somehow have to invent the curriculum materials that are necessary to align the new skill to the particular classroom: All this in real time. It seems, on its face, absurd to expect anything other than a *pro forma* response to this kind of professional development.

When you begin to describe the organizational conditions under which professional development actually contributes to instructional capacity in schools, you begin to describe an organization as it rarely exists. Such an organization would only require teachers to learn new skills and knowledge if it were prepared to support their practice of these skills in real classrooms, providing experts to work with teachers as they master these skills and adapt them to their students' responses to the new practices and materials. It would be an organization that offered consistent messages to principals, teachers and students about what goals are most important and what resources are available to support the work of meeting them. It would be an organization in which administrators, at the school and system level, think their main job is to support the interaction of teachers and students around the mastery of specific content. And, it would be a system in which no judgments about performance, of teachers or students, are made without first ensuring that the conditions for high performance have been met; a system in which no one is expected to demonstrate knowledge and skill that they haven't had the opportunity to learn.

These conditions create a formidable agenda of organizational redesign for most schools and school systems. System officials would have to have considerable expertise about the instructional practices they expect teachers to acquire. That expertise would have to entail, not just teaching teachers how to teach differently, but actually working with teachers in their classrooms to solve problems of practice in a way that supports continuous improvement. The system would have to manage its resources to support and fund the work of teachers and professional developers in sustained interaction. It would also have to set priorities, clearly stating which problems of instructional practice are central and which peripheral to overall improvement before deciding how to allocate professional development resources. Schools would have to become learning environments for teachers as well as for students. The instructional day

One cannot enhance teachers' knowledge and skill without also addressing what teachers know about reaching individual students and the actual curriculum that teachers are expected to teach.

would be designed to facilitate the learning of both groups, and the learning of educators, inside and outside of the classroom, would have to be arranged to avoid any disruption to student learning. And, it would be up to administrators to negotiate with the system at large to secure the resources necessary for implementation.

In other words, to use professional development as an instrument of instructional improvement, schools and school systems will have to reorganize themselves in order to make substantial changes in the conditions of work for teachers and students.

Effective professional development requires the development of expertise as an organizational capacity and this requires differentiated organizational roles.

One of the strongest social norms among school faculty is that everyone is expected to pretend that they are equally effective at what they do. However, most people who work in schools know (or at least claim to know) who the "good" teachers are. Teachers themselves will, under the right circumstances, talk candidly about who the strong and weak teachers are reputed to be. Teachers who threaten this pretence, either by publicly distinguishing themselves as expert teachers or by being singled out as a model within their schools, may have to pay a price in social ostracism.

Yet the entire process of improvement depends on schools making public and authoritative distinctions among teachers and administrators based on quality, competence, expertise and performance. If everyone is equally good at what they do, then no one has anything to teach anyone else about how to do it better. Thus, educators' pretence of absolute equality is a major impediment to improvement and a significant factor in determining the capacity of schools to engage in effective professional development.

In a previous paper (Elmore 2000), I argued that developing the capacity to lead instruction requires a differentiated role for "leaders" and a model of distributed leadership in which those with different roles and competencies could work cooperatively around the common task of instructional improvement. This same argument applies to creating and sustaining capacity using professional development. To improve themselves, systems need to be able to identify people who know what to do, to develop the capacity of those in the organization to learn what to do, and to create settings in which people who know what to do teach those who don't. Instructional expertise is a key element of organizational capacity in regard to the use of professional development. One could argue that a school system's capacity to make productive use of professional development is directly related to its willingness to make binding and public judgments about quality and expertise.

One possible source of the presumption of equal competency is the widely held belief that teaching practice cannot be evaluated due to its highly complex, uncertain and indeterminate nature. It is easy to make mistakes in judgment about better and worse teaching, and it is particularly easy to make egregious mistakes when those who make the judgments know little about what constitutes expert practice. In most systems, the administrators who are assigned the responsibility for evaluating teachers are not selected for their expertise in instruction; indeed, most of their work has nothing to do with instruction. So it's not surprising that teachers distrust proposals for individual assessment of their quality and competence. Their misgivings are well founded.

For distinctions in expertise to be credible among teachers, they have to be rooted in the core issue of instructional capacity. That is, distinctions in expertise probably won't be institutionalized unless they grow out of the work of analyzing and improving student learning. Just

as individual teachers are more likely to adopt new practices after powerful improvement in student learning has been demonstrated to them, so too must the distinctions in expertise be observable in actual classroom practice before they will be generally acknowledged.

If everyone is equally good at what they do, then no one has anything to teach anyone else about how to do it better.

The good news: The money is probably there. The bad news: It's already being spent on something else.

Just as it is probably fruitless to spend more money on professional development in schools and school systems that haven't developed the capacity to use it effectively, so too is it problematic to invest more money in professional development if schools and school systems don't know how their current monies are being spent. The purchase of time for teachers to participate in professional development on a large scale, staffing arrangements that permit some teachers to work full or part time as professional developers, the hiring of outside experts to consult on questions of design and to provide support to teachers and administrators, recruiting and training administrators with deep instructional knowledge, creating time for observation and analysis of students' responses to new types of instruction—all of these activities are very expensive, especially if they are done at scale in all schools and classrooms.

The first response of most administrators to these ideas is that they would be happy to try them if someone else would pay for them, usually meaning the next level of government above the one in which they are working. This is the theory of federalism as stated by Daniel Elazar, the renowned political scientist: The appropriate level of government to perform a given function is always the one you're working in; the appropriate level of government to pay for that function is always the one above your own.

But there is a major problem with this theory. School systems that are not spending their own professional development dollars effectively are unlikely to be more effective in spending other peoples' money. More support for professional development from any level of government is unlikely to improve practice unless schools and school districts are already using their own resources effectively.

The evidence is now substantial that there is considerable money available in most district budgets to finance large-scale improvement efforts that use professional development effectively. The money is there. The problem is that it's already spent on other things and it has to be reallocated to focus on student achievement. The sources of revenue are obvious, but using them means tackling the central problem of how schools and school systems are managed. Substantial funding can be found by reducing the staffing demands of specialized programs for teachers and students, carefully tracking differential staff patterns across schools and grade-levels, scheduling larger blocks of instructional time, refocusing categorical and special purpose funding on instructional purposes, reallocating non-instructional administrative funds to serve instructional purposes and, most importantly, reallocating and focusing existing expenditures on professional development. (See, e.g., Miles 1995; Miles and Darling-Hammond 1998.)

To say that the money is available, of course, begs the question of why it is not being spent on professional development and improved student achievement already. The answer to that question is that school systems have never had an incentive to evaluate and manage the resources they use around a coherent instructional agenda. Instead, the money that districts spend on instruction tends to be compartmentalized to meet specific external demands and specific incremental decisions at the system and school levels. As with other problems of capacity, the problem of resources can only be addressed by making the improvement of stu-

dent learning the central priority and then deciding whether the available resources are adequate to the task.

A potential strength of performance-based accountability systems is that they create an incentive system in which schools and school systems are rewarded for developing a coherent focus on teaching and learning then changing their staffing arrangements and budgets to reflect this. But many schools and school systems are going to need help in understanding what must be done, as well as executing the range of actions they will have to take in order to increase their capacity to use professional development to respond to the new accountability systems. Most people in schools and school systems are not prepared for these changes. People in low-capacity schools and school systems are even less prepared. States and localities need to markedly increase the volume of information and assistance available to schools around organizational capacity issues and to engage in more open experimentation to identify more effective ways of focusing and raising capacity.

Conclusion: Developing the Practice of Improvement

American public education is leaving a period in which questions of practice and its improvement were essentially pushed into the classroom, where doors were shut and teachers were left to develop their own ideas and practices, largely unsupported by the organizations in which they worked. The next stage of development in American education, propelled by the advent of performance-based accountability, requires the development of a practice of continuous school improvement —a body of knowledge about how to increase the quality of instructional practice and boost student learning on a large scale across classrooms, schools, and entire school systems. At its core is professional development, the process of professional learning for the purpose of improving student achievement.

I have tried to sketch out one view of what theoretical and practical knowledge might constitute a practice of improvement and how professional development fits into that practice. I have argued that the conventional wisdom about effective professional development provides an adequate working theory to guide practice. I have also argued that there are deep organizational and cultural reasons why schools and school systems are not likely, in their present form, to make effective use of professional development. Investing more professional development funds in systems that have not begun a serious practice of improvement is unlikely to produce any discernible increase in student learning. In order for professional development to

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work as a cumulative learning process, it has to be connected to the practice of improvement. In my view, that practice must entail attention to what knowledge and skill educators require to improve student learning and how people come to master that knowledge, which incentives encourage people to engage in the difficult and uncertain process of changing their teaching and administrative practice, and what resources and capacities are required to support the practice of improvement.

There are several aspects of the idea of a practice of improvement that are counter-cultural to the current organization of American schools. We should acknowledge these conflicts explicitly, rather than pretending that they don't exist. First, the task of improvement is one that schools and school systems are not designed to do and may be one that some people who work in schools think is neither possible nor worthwhile. If you are steeped in a culture in which all practice is essentially invented in classrooms, and in which your daily worklife provides you no access to challenging ideas about how to do your work better, it is not surprising that you would think that large-scale improvement is an improbable idea.

Second, existing norms about knowledge and expertise work against improvement. The belief that experience alone increases expertise in teaching, or that those with less experience but more access to knowledge, might be qualitatively better teachers than those with more experience and less access to knowledge, works against the possibility that new knowledge can dramatically improve teaching practice. The belief, at least in public, that all teachers are equal in their skill and knowledge and that all teaching practice is the same undermines the possibility that teachers can learn from each other in powerful ways, as well as learning from experts who are not part of their immediate circle of colleagues.

Third, the existing occupational and career structure in schools and school systems is completely inadequate as a basis for improvement. Teaching is a largely undifferentiated occupation, while improvement demands that it become more differentiated—allowing teachers who have developed strong expertise in particular domains to lead the improvement of instruction in those domains by working as mentors, coaches and professional developers. Administration is a highly differentiated occupation in which the categories of specialization have little or nothing to do with the core function of the organization, which is instruction. Improvement requires a less differentiated administrative structure with more focus on the skills required for the practice of improvement. Mobility among roles is presently limited, while the practice of improvement requires flexibility and movement, so that people with expertise can move into places where their knowledge and skill can be connected to practice more immediately.

Fourth, the design of work in schools is fundamentally incompatible with the practice of improvement. Teachers spend most of their time working in isolation from each other in self-contained classrooms. In most schools and school systems, time away from the direct practice of instruction is considered time that is not spent "working." Hence, learning how to teach more effectively, if it is acknowledged at all in the structure of work, is either done on the teacher's own time through evening or summer courses, or is wedged into short periods of time released from "regular" instructional duties. The problem with this design is that it provides almost no opportunity for teachers to engage in continuous and sustained learning about their practice in the setting in which they actually work, observing and being observed by their colleagues in their own classrooms and in the classrooms of other teachers in other schools confronting similar problems of practice. This disconnect between the requirements of learning to teach well and the structure of teachers' work life is fatal to any sustained process

Education is leaving a period in which questions of practice and its improvement were essentially pushed into the classroom, where doors were shut and teachers were left to develop their own ideas and practices.

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of instructional improvement.

Fifth, the culture of passivity and helplessness that pervades many schools works directly against the possibility of improvement. Schools with weak internal accountability structures assign causality for their success or failure to forces outside their control: the students, their families, the community, the "system." Schools with strong internal accountability assign causality for their success or failure to themselves: to the knowledge and skill they bring to their work, to the power of shared values, and to the capacities of their organizations (Abelmann and Elmore, et al. 1999). The historic absence of clear guidance for schools around issues of performance and accountability has spawned an extensive and resilient culture of passivity, while the practice of improvement requires a culture of coherence and responsibility. *Teachers and administrators learn this culture of passivity and helplessness as a consequence of working in dysfunctional organizations, not as a consequence of choosing to think and behave that way. Improving the organization will change what adults learn.*

In developing a practice of improvement, it is possible to confront these contradictions more or less directly, with more or less tactical and strategic skill, but it is not possible to avoid them altogether. Grace, humility, and humor are virtues well suited to this work. The creaking and grinding sounds emerging from schools and school systems over the foreseeable future are the sounds of a nineteenth-century structure passing quickly through the twentieth century in order to confront the demands of the twenty-first. This will not always be a beautiful and edifying process. It will often look exactly like what it is, a wrenching undertaking that involves large numbers of people learning how to do something they previously did not know how to do and learning it at increasingly high levels of expertise.

So the practice of improvement is about changing three things fundamentally and simultaneously: (1) the values and beliefs of people in schools about what is worth doing and what it is possible to do; (2) the structural conditions under which the work is done; and, (3) the ways in which people learn to do the work. A powerful principle that I think derives from research and practice is that this kind of difficult, contingent, and uncertain learning is best done in close proximity to the work itself. And the work of schools is instruction.[3] Teachers acquire different values and beliefs about what students can learn by observing their own students and students like theirs in other settings, learning things that they, the teachers, might not have believed possible. Teachers and administrators learn how to connect new knowledge and skill to practice by trying to do specific things in the classroom and by asking themselves whether there is evidence that, having done these things, students are able to do things they were not able to do before. School administrators and teachers learn to change the conditions of work by trying new ideas in the context of specific curriculum content and specific instructional problems, grade-level conferences and observations around particular problems of math or literacy instruction, for example. System administrators learn to change structures and resource-allocation patterns by observing what effective practice in schools looks like and trying to figure out how to support it. Learning by these adults that is not anchored in the work is unlikely to lead to durable and supportive changes in the conditions under which the work is done. Essentially, the practice of improvement is a discipline of understanding how good work, and the learning of good work, can be supported and propagated in schools and school systems.

[3] My first tutorial on this principle was delivered by Anthony Alvarado, then-Superintendent of Community School District #2, New York City, and now Chancellor for Instruction in the San Diego Public Schools.

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It is fashionable among people who work on problems of "change" and improvement in schools to argue that a deep transformation of schools will require a long time and much more money. All things in education seem to require a long time and much more money. I hope my argument in this paper brings a note of healthy skepticism on both counts. First, improvements in instruction have *immediate* effects on student learning wherever they occur, and these effects are usually demonstrable through skillful assessment and observation of students' work. The effects, in the short-term, may not be widespread; certain settings may lag behind others in seeing the effects and certain classroom and school contexts may present more difficult improvement problems than others.

But, I think it is important to keep in mind that *students learn what they are taught,* when the teaching is done effectively and thoughtfully. So we should not peg our expectations for improvement in student performance on fancy and ambiguous theories about the uncertainty and contingency of educational "change." A central part of the discipline of improvement is the belief that if the teaching is good and powerful, and if the conditions of work enable and support that practice, then we should be able to see immediate evidence that students are learning. If we can't, then we should ask whether the teaching was really as good as we thought it was. A central part of the practice of improvement should be to make the connection between teaching practice and student learning more direct and clear. The present generation of students deserve the best practice we can give them and their learning should not be mortgaged against the probability that something good will happen for future generations. Improvements should be focused directly on the classroom experience of today's students.

A central part of the practice of improvement should be to make the connection between teaching practice and student learning more direct and clear.

I also have argued that the discipline of improvement requires major changes in the way schools and school systems manage the resources they already have: the time of teachers and administrators; the practices reflected in existing staffing patterns; administrative overhead; and, the resources already being spent, largely ineffectively, on professional development—before we can tell how much additional money is needed to engage in large-scale improvement. This is more than a low-level accounting exercise; it is fundamental to the entire process of improvement. Adding money to a system that doesn't know how to manage its own resources effectively means that the new money will be spent the same way as the old money.

Many foundations and government agencies have learned (or, more likely, haven't learned) this lesson the hard way. Yet there seems to be a kind of eternal optimism in the educational-change establishment that the next time we will get it right, that this new idea we have about *how* to give failing schools and school systems more money will make something happen that we were unable to make happen the last time. What seems clear is that the existing structure and culture of schooling is able to assimilate and deflect just about any attempt to influence it fundamentally using money as leverage. A system without a firm strategy for allocating its own money around the task of instructional improvement is like the carnivorous plant in the musical *Little Shop of Horrors;* it eats whatever it is fed and asks for more. The main work of resource allocation has to occur in schools and school systems, not in the policy and fiscal environment around them.

As this work occurs and as we get to know more about the actual resource requirements of large-scale improvement, it is quite possible that we will discover that it takes more money, maybe much more money, to do what needs to be done. But something fundamental will have changed in this process: We will actually know what the money is being spent on and what improvements in teaching practice and student learning we should expect because of it. I

would love to write the paper that says why substantial infusions of new money into schools and school systems for professional development will produce higher quality instruction and higher levels of student learning. I cannot write that paper now.

Professional development is at the center of the practice of improvement. It is the process by which we organize the development and use of new knowledge in the service of improvement. I have taken a deliberately instrumental view of professional development, that it should be harnessed to the goals of the system for the improvement of student achievement, rather than driven by the preferences of individuals who work in schools. There is disagreement in the field on this point. Many people who are knowledgeable about teaching and teacher professional development argue that teachers, as professionals, should be given much more discretion and control as individuals and in collegial groups in deciding the purpose and content of professional development. Indeed, their most powerful critiques of existing professional development practices follow from the insight that mandated teacher learning is an oxymoron (Little 1993; Hargreaves 1991). Poorly organized and bad professional development can be, as many educators will testify, a deeply insulting experience.

The use of professional development for purposes of large-scale improvement raises difficult questions of authority, autonomy and control in school organization. We should not minimize these issues. It will require deep thought and skill to address them. My bias toward an instrumental view of professional development grows out my analysis of the pathologies of the existing structure and culture of schooling, as well as the knowledge that public school teachers and administrators are public professionals who are accountable for the effectiveness of their practice to public authorities and the tax paying community, as well as to their clients. Hence, it is not a threat to their professional status to argue that their publicly funded professional development should be organized around a common agenda.

This said, however, I think it wise to take a developmental view on issues of authority, autonomy, and control in decisions about professional development. The practice of improvement should create more differentiated and flexible organizations in schools and school systems. The development and distribution of competence and expertise should result in more knowledgeable and powerful people operating in "boundary roles" as mentors, teacher leaders, and professional developers, as well as more knowledgeable and powerful people in the ranks of the teaching force and administration. This distribution of expertise and leadership means that schools and school systems will have to become more consensual in the way they make decisions about issues of professional practice, including professional development. And, I have argued, issues of accountability are essentially reciprocal anyway, since I can't meet your expectations for performance unless you support my learning. So, while professional development will continue to be instrumental to improvement, I expect that it will necessarily become much more consensual in its structure of authority. Knowledge-based organizations, which is what schools will become through the practice of improvement, are organizations designed around the authority of expertise, rather than the authority of position. What you know and the effect of what you know on student learning are more important than whom you know or what your title is.

As I said at the beginning, the development of the practice and discipline of large-scale improvement is a matter of some urgency. The consequences of performance-based accountability can be disastrous (at least for some schools and deleterious for others) if schools and school systems respond to demands for increased performance by pushing harder on the existing structure of schooling and demanding more from school personnel without acknowledging

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that few, if any, people actually know how to do the improvement work that must by done. We are now at the stage of understanding that schools and school systems have very different responses to pressure for performance, depending on the knowledge and skill embodied in their teaching and administrative staffs, their capacity to create a strong normative environment around good teaching, and their ability to muster and manage the resources required to begin the long process of raising the level of practice. The issue is what we will do with this knowledge, whether we will use it to, once again, affirm the self-fulfilling prophecy that some schools and the students in them are "better" than others, or whether we will enable all schools to become competent and powerful agents of their own improvement.

What you know and the effect of what you know on student learning are more important than whom you know or what your title is.

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APPENDIX A
Standards for Staff Development

CONTEXT STANDARDS

Staff development that improves the learning of all students:

- Organizes adults into learning communities whose goals are aligned with those of the school and district. (Learning Communities)
- Requires skillful school and district leaders who guide continuous instructional improvement. (Leadership)
- Requires resources to support adult learning and collaboration. (Resources)

PROCESS STANDARDS

Staff development that improves the learning of all students:

- Uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement. (Data-Driven)
- Uses multiple sources of information to guide improvement and demonstrate its impact. (Evaluation)
- Prepares educators to apply research to decision making. (Research-Based)
- Uses learning strategies appropriate to the intended goal. (Design)
- Applies knowledge about human learning and change. (Learning)
- Provides educators with the knowledge and skills to collaborate. (Collaboration)

CONTENT STANDARDS

Staff development that improves the learning of all students:

- Prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and hold high expectations for their academic achievement. (Equity)
- Deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately. (Quality Teaching)
- Provides educators with knowledge and skills to involve families and other stakeholders appropriately. (Family Involvement)

National Staff Development Council, 2001 (Revised)

APPENDIX B
Guiding Principles for Transforming Professional Development

A number of experts and organizations have suggested that the most promising professional development programs or policies are those that:[4]

- stimulate and support site-based initiatives. Professional development is likely to have greater impact on practice if it is closely linked to school initiatives to improve practice.
- support teacher initiatives as well as school or district initiatives. These initiatives could promote the professionalization of teaching and may be cost-effective ways to engage more teachers in serious professional development activities.
- are grounded in knowledge about teaching. Good professional development should encompass expectations educators hold for students, child-development theory, curriculum content and design, instructional and assessment strategies for instilling higher-order competencies, school culture and shared decision-making.
- model constructivist teaching. Teachers need opportunities to explore, question and debate in order to integrate new ideas into their repertoires and their classroom practice.
- offer intellectual, social and emotional engagement with ideas, materials and colleagues. If teachers are to teach for deep understanding, they must be intellectually engaged in their disciplines and work regularly with others in their field.
- demonstrate respect for teachers as professionals and as adult learners. Professional development should draw on the expertise of teachers and take differing degrees of teacher experience into account.
- provide for sufficient time and follow-up support for teachers to master new content and strategies and to integrate them into their practice.
- are accessible and inclusive. Professional development should be viewed as an integral part of teachers' work rather than as a privilege granted to "favorites" by administrators.

Excerpted from Thomas B. Corcoran's "Helping Teachers Teach Well: Transforming Professional Development," a policy brief from the Consortium for Policy Research in Education, June 1995

[4] Griffin, G. 1982. "Staff Development." Paper prepared for the National Institute of Education Invitational Conference, Research on Teaching: Implications for Practice, Arlie House, VA. Washington, DC, National Institute of Education; Hodges, H. 1994. "Using Research to Inform Practice in Urban Schools: 10 Key Strategies for Success. Paper prepared for the Invitational Conference on "Improving Urban Schools: Better Strategies for Dissemination and Knowledge Utilization," sponsored by the National Center on Education for the Inner Cities, Alexandria, VA, September 8-10; Joyce, B., and B. Showers. 1982. "The Coaching of Teaching." *Educational Leadership,* 40(1): 4-10; Little, J.W. 1993. "Teachers' Professional Development in a Climate of Reform." Educational Evaluation and Policy Analysis 15(2):129-151; Loucks-Horsley, S., C.Harding, M. Arbuckle, L. Murray, C. Dubea, and M. Williams. 1987. *Continuing to Learn: A Guide Book for Teacher Development.* Andover, MA: Regional Laboratory for Educational Improvement of the Northeast and Islands and the National Staff Development Council; Price, H. 1993. "Teacher Professional Development: It's About Time." *Education Week,* 12(33), 32; National Staff Development Council. 1994. *National Staff Development Council's Standards for Staff Development: Middle level Edition.* Oxford, OH: author; Zimpher, N. L., and K. R. Howey. 1992. *Policy and Practice Toward the Improvement of Teacher Education.* Oak Brook, IL: The North Central Regional Educational Laboratory.

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APPENDIX C
Improving Professional Development, Research-Based Principles

Whatever their content and goals, professional development activities that have the characteristics below are more likely to be effective than those that do not...

- The content of professional development focuses on what students are to learn and how to address the different problems students may have in learning the material.
- Professional development should be based on analyses of the differences between (a) actual student performance and (b) goals and standards for student learning.
- Professional development should involve teachers in identifying what they need to learn and in developing the learning experiences in which they will be involved.
- Professional development should be primarily school-based and built into the day-to-day work of teaching.
- Most professional development should be organized around collaborative problem solving.
- Professional development should be continuous and ongoing, involving follow-up and support for further learning – including support from sources external to the school that can provide necessary resources and new perspectives.
- Professional development should incorporate evaluation of multiple sources of information on (a) outcomes for students and (b) the instruction and other processes involved in implementing lessons learned through professional development.
- Professional development should provide opportunities to understand the theory underlying the knowledge and skills being learned.
- Professional development should be connected to a comprehensive change process focused on improving student learning.

(For a more detailed version of these principles, see www.npeat.org/strand2/pdprin.pdf.)

—From *Revisioning Professional Development: What Learner-Centered Professional Development Looks Like*, National Partnership for Excellence and Accountability in Teaching, 1999

The Albert Shanker Institute
555 New Jersey Avenue, NW
Washington, DC 20001

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